REMARKS

OVERVIEW

Claims 7-10 and 12-16 are pending in this application. Claims 7, 13, and 15 have been amended. Claim 11 has been cancelled and claim 16 is new. The present response is in earnest effort to place the application in proper form for immediate allowance. Reconsideration and passage to issuance are respectfully requested.

CORRECTION OF FORMALITIES

The Examiner indicated that claims 7 is objected to because the first three lines of the clean copy of claim 7 were missing and claim 16 as being renumbered as claim 15 to reflect the correct total number of original claims. This amendment includes a clean copy of claim 7 as amended and the Applicant notes the Examiner's renumbering of what is now claim 15.

ISSUES UNDER 35 U.S.C. § 102

The Examiner has previously rejected claims 7-10 and 12-13 under 35 U.S.C. § 102(b) as being anticipated by U. S. Patent No. 4,217,570 to Holmes. Holmes discloses that an oxide under layer 32 is formed on a resistor and there is an outer layer 34 of silicon nitride (col. 2, lines 53-63). This structure allows metal constituents of the resistive element 30 to react with the passivation under layer 32 during laser trimming to form stable metal oxides rather than unstable nitrides. (col. 2, lines 64-67).

The Examiner has recognized that Holmes does not disclose an overlayer of tantalum pentoxide (Office Action, p. 3, numbered paragraph 6). Claim 7 has been amended, and Holmes does not anticipate.

Claim 7 now requires the limitation of "an outer moisture barrier consisting of tantalum pentoxide directly overlaying and attaching to the metal thin film resistive layer for reducing failures due to electrolytic corrosion under powered moisture conditions." This limitation is simply not disclosed in Holmes. Holmes does not realize the advantage that the tantalum pentoxide provides in "reducing failures due to electrolytic corrosion under powered moisture conditions." Therefore, in Holmes, the tantalum pentoxide is not a part of "an outer moisture barrier" of a thin film resistor. Rather, in Holmes, a outer passivation layer of silicon nitride is used and tantalum pentoxide (or other oxides) are used as an inner layer to insulate the resistive element of Holmes from the silicon nitride. Therefore, the structure of Holmes is different from the Applicant's claimed invention and furthermore, the tantalum pentoxide of the Applicant's claimed invention provides an advantage neither taught nor suggested by Holmes. Therefore, the Applicant respectfully submits that claim 7 is allowable and these rejections should be withdrawn. As claims 8-10 and 12 depend from claim 7, these rejections should also now appropriately be withdrawn.

Claim 13 requires "an outer moisture barrier consisting of tantalum pentoxide directly overlaying and attaching to the nickel chromium alloy thin film layer for reducing failures due to electrolytic corrosion under powered moisture conditions. This limitation of claim 13 is simply not disclosed by Holmes for the reasons expressed with respect to claim 7. Therefore, this rejection to claim 13 should also be withdrawn.

Claims 7 and 11 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Wienand, et al. Wienand discloses a temperature-dependent resistor (Abstract). The Examiner indicates that Wienand discloses the claimed invention at Figures 4 or 5 with metal film 1 and tantalum pentoxide layers 3, citing also to table 2, example 10. The Applicants disagree. The

structure of Wienand separates the passivation layer from the resistive layer (of platinum) with an intermediate layer or diffusion layer 10 to prevent admission of silicon ions to the platinum (page 4, ¶ 41). Therefore, any layer of tantalum pentoxide has an overlaying passivation layer. Thus, Wienand does not disclose "an outer moisture barrier consisting of tantalum pentoxide directly overlaying and attaching to the metal thin film resistive layer for reducing failures due to electrolytic corrosion under powered moisture conditions." Wienand simply does not disclose that the tantalum pentoxide layer is the outer layer. Further, Wienand is not directed to solving the problems of failure due to electrolytic corrosion under powered moisture conditions. Nor, does Wienand identify the advantage of using tantalum pentoxide "for reducing failures due to electrolytic corrosion under powered motor conditions." Therefore, claim 7 is simply not anticipated by Wienand, and this rejection should be with drawn. As claim 11 depends from claim 7, this rejection should also now be withdrawn.

ISSUES UNDER 35 U.S.C. § 103(a)

Claims 11, 12, and 14-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Holmes '570 in view of Schauer or Wienand. As the Examiner has noted, Holmes does not disclose the overlayer being a tantalum oxide.

The Examiner indicates that Schauer discloses that it is typical to employ tantalum oxide in resistors for use as a protective film. This is true, but only in a very different context than Applicants claimed invention, and therefore Schauer simply does not support the Examiner's rejection. What Schauer teaches is

> "For example, by thermal oxidation or anodization, tantalum metal is converted into non-conductive tantalum oxide which is suitable as a protective film against atmospheric conditions and/or as capacitor dielectric." (col. 1, lines 15-20).

It is apparent that in Schauer, the tantalum oxide is merely that which is formed by thermal oxidation or anodization, and not that which is otherwise deposited. Note that the Applicant has also amended claim 7 to include the negative limitation that "the metal thin film layer being non-tantalum." As Schauer uses tantalum, which is merely oxidized to form a tantalum oxide, Schauer actually teaches away from the present invention as claimed, because it only discloses using tantalum oxide when tantalum is used as the metal film resistive element. Schauer does not disclose teach or suggest using non-tantalum resistive layers and then depositing tantalum pentoxide as a moisture barrier. Thus, Schauer merely reinforces that one skilled in the art would not recognize using tantalum pentoxide in a resistor as a moisture barrier where tantalum is not used. Therefore, this rejection to claim 12 should be withdrawn.

With respect to claim 12, the Examiner indicates that Schauer discloses employing sputtering in order to form films. This is true, but it does not support the Examiner's combination. In Schauer, the film that is being sputtered is the tantalum itself, as opposed to the tantalum pentoxide (see e.g. Abstract). Therefore, these rejections should also be withdrawn.

NEW CLAIM

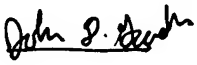
The Applicant has added new claim 16. New claim 16 is similar in scope to previous claim 11 (now cancelled) in that both a passivation layer and a moisture barrier are provided, the moisture barrier being the outer layer. The Applicant submits that the Examiner should also find claim 11 allowable.

Enclosed is our check for $84.00 for the one additional independent claim. No other fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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AMENDMENT — VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Please amend claims 7, 13, and 15 as follows:

7. (Twice Amended)

A thin film resistor comprising:

a substrate;

a metal thin film resistive layer attached to the substrate, the metal thin film layer being non-tantalum;

a resistor termination attached on each end of the metal thin film resistive layer; and

~~a~~ an outer moisture barrier consisting of tantalum pentoxide ~~layer~~ directly overlaying and attaching to the metal thin film resistive layer ~~the tantalum pentoxide layer providing a barrier to moisture.~~ for reducing failures due to electrolytic corrosion under powered moisture conditions.

13. (Twice Amended)

A nickel-chromium alloy thin film resistor comprising:

a substrate;

a nickel- chromium alloy thin film layer attached to the substrate;

a termination attached on each end of the nickel-chromium alloy thin film; and

~~a~~ an outer moisture barrier consisting of tantalum pentoxide ~~layer~~ directly overlaying and attaching to the nickel-chromium alloy thin film layer for reducing failures due to electrolytic corrosion under powered moisture conditions.

15. (Amended)

A nickel- chromium alloy thin film resistor comprising:

a substrate;

a nickel-chromium alloy thin film layer attached to the substrate;

a passivation layer directly overlaying and attaching to the nickel-chromium alloy layer; and

~~a~~ an outer moisture barrier consisting of tantalum pentoxide ~~layer~~ directly overlaying and attaching to the passivation layer for reducing failures due to electrolytic corrosion under powered moisture conditions.

Please add new claim 16 as follows:

16. A thin film resistor comprising:

a resistor substrate;

a metal thin film resistive layer attached to the substrate, the metal thin film layer being non-tantalum;

a resistor termination attached on each end of the metal thin film resistive layer;

a passivation layer directly overlaying the metal thin film resistive layer;

an outer moisture barrier consisting of tantalum pentoxide directly overlaying the passivation layer for reducing failures due to electrolytic corrosion under powered moisture conditions.